

Amendments to the Claims

All claims currently pending and under consideration in the Present Application are shown in the listing of claims and will replace all prior versions and listings of claims in the Application.

Listing of Claims:

1. (Previously presented) A medical device for injecting medicinal fluid from a vial having a container and an amount of medicinal fluid, comprising:
 - a hollow barrel;
 - a vial holder displaceable within the barrel having a socket configured to receive the vial;
 - an air-pump chamber within the barrel configured to pump air into the vial;
 - a needle having a sharpened tip operable between an exposed position in which the sharpened tip projects forwardly from the barrel and a shielded position in which the sharpened tip is shielded from contact;
 - a transfer chamber within the barrel for receiving the medicinal fluid from the vial, wherein the transfer chamber is adapted to be in fluid communication with the needle;
 - a transfer seal disposed within the barrel between the transfer chamber and the air-pump chamber; and
 - wherein after use, the needle is disposed in the shielded position.

2. (Previously presented) The medical device of claim 1, wherein the transfer seal comprises a transfer conduit configured to extend between the vial and the transfer chamber for transferring medicine from the vial to the transfer chamber.

3. (Cancelled).

4. (Previously presented) The medical device of claim 1 wherein the vial holder is at least partially disposed within the barrel.

5. (Cancelled).

6. (Previously presented) The device of claim 1 comprising a piston operable to pump air from the air-pump chamber into the vial to pressurize the fluid in the vial.

7. (Previously presented) The device of claim 1 comprising a lock releasably locking the vial holder and the barrel to prevent relative motion between the vial holder and the barrel.

8. (Original) The medical device of claim 1 comprising a piston for expelling medicine out of the transfer chamber through the needle.

9. (Cancelled).

10. (Original) The medical device of claim 1 wherein the transfer chamber is displaceable relative to the needle.

11. (Original) The medical device of claim 1 comprising a valve adapted to control the flow of fluid between the transfer chamber and the vial.

12. (Original) The medical device of claim 11 wherein the valve is a sliding valve.

13. (Original) The medical device of claim 1 comprising a pierceable rear seal adapted to provide a fluid-tight seal between the vial and the transfer chamber.

14. (Original) The device of claim 1 comprising a pierceable forward seal providing a fluid-tight seal between the transfer chamber and the needle.

15. (Original) The device of claim 1 comprising a biasing element biasing the needle toward the shielded position.

16. (Original) The device of claim 15 comprising a needle retainer releasably retaining the needle in the exposed position against the bias of the biasing element.

17. (Original) The device of claim 16 wherein the needle retainer is configured so that the needle is automatically released for retraction at the end of an injection.

18. (Cancelled).

19. (Previously presented) A medical device, comprising:

a vial containing a quantity of medicinal fluid, wherein the vial comprises a container having a fixed rearward wall closing the rearward end of the container and a fixed pierceable wall sealing the forward end;

a holder configured to receive the vial;

an air-pump chamber configured to pump air into the vial;

an injection needle for expelling the medicinal fluid from the device wherein the injection needle comprises a sharpened tip operable between an extended position in which the sharpened tip is exposed for use and a protected position in which the sharpened tip is shielded to prevent inadvertent contact with the sharpened tip;

a biasing element biasing the needle toward the retracted position;

a needle retainer releasably retaining the needle in the extended position against the bias of the biasing element;

a communication path adapted to establish fluid flow between the vial and the injection needle to allow the medicinal fluid to flow from the vial to the injection needle;

a transfer chamber disposed within the communication path for receiving the medicinal fluid from the vial, wherein the medicinal fluid is subsequently expelled from the transfer chamber through the injection needle;

a transfer seal disposed between the air-pump chamber and the transfer chamber, wherein the transfer seal defines a boundary of the air-pump chamber and wherein the transfer seal is pierceable to allow medicinal fluid transfer between the vial and the transfer chamber; and

wherein after use the needle is disposed in the protected position.

20-24. (Cancelled).

25. (Previously presented) The device of claim 19 comprising a conduit extending between the vial and the chamber.

26. (Previously presented) The device of claim 19 wherein the chamber is disposed in a first housing.

27. (Original) The device of claim 26 comprising a pierceable seal sealing an end of the chamber.

28. (Original) The device of claim 26 wherein the device comprises a second housing associated with the injection needle, wherein the first housing is displaceable relative to the second housing.

29. (Original) The device of claim 28 wherein displacing the first housing relative to the second housing operates to expel the medicinal fluid from the chamber through the injection needle.

30. (Original) The device of claim 28 comprising a stop for releasably impeding relative displacement between the first and second housings.

31. (Original) The device of claim 24 comprising a valve controlling the flow of medicinal fluid from the chamber.

32-53. (Cancelled).

54. (Currently amended) A medical device cooperable with a needle assembly having a retractable injection needle and a pre-filled container of medicinal fluid, the medical device comprising:

a housing cooperable with the needle assembly;

a socket for receiving the pre-filled container;

a pressurizing element external to the pre-filled container and within the housing to provide positive fluid pressure within the pre-filled container when the pre-filled container is disposed in the socket;

an empty chamber in the housing ~~for receiving the~~ configured to receive medicinal fluid from the pre-filled container and to deliver medicinal fluid to the injection needle, wherein the chamber is configured to receive substantially all of the medicinal fluid from the pre-filled container prior to establishment of fluid communication between the chamber and the injection needle; and

a transfer seal disposed between the chamber and the pressurizing element, the transfer seal comprising a conduit for providing a fluid path between the chamber and the pre-filled container when the pre-filled container is disposed in the socket;

wherein the housing has an activation surface cooperable with the needle assembly and adapted configured to activate retraction of the needle after use.

55. (Previously presented) The device of claim 54 comprising a pierceable seal sealing the chamber.

56. (Cancelled).

57. (Currently amended) The device of claim 54 comprising a fluid path extending between the pre-filled container and the needle assembly when the needle assembly is attached to the housing and the pre-filled container is disposed in the socket.

58. (Original) The device of claim 57 comprising a valve controlling the flow of fluid along the fluid path.

59. (Original) The device of claim 58 wherein the valve is a sliding valve.

60. (Previously presented) The device of claim 54 comprising a stop for releasably retaining the housing from displacement relative to the needle assembly when the needle assembly is connected with the housing.

61. (Previously presented) A medical device for injecting medicinal fluid from a vial containing an amount of medicinal fluid, comprising:

a hollow barrel connectable with the vial;

a needle having a sharpened tip operable between an exposed position in which the sharpened tip projects forwardly from the barrel and a retracted position in which the sharpened tip is shielded from contact;

a biasing element biasing the needle rearwardly toward the retracted position;

a retainer releasably retaining the needle in the exposed position;

a holder engageable with the barrel, wherein a socket is formed in the holder for receiving the vial;

an air-pump chamber disposed within the holder, and a piston operable to pump air from the air-pump chamber into the vial to provide positive air pressure within the vial, wherein the holder is displaceable relative to the piston;

a lock configured to releasably lock the holder and the barrel to prevent relative motion between the holder and the barrel; and

a transfer chamber for receiving the medicinal fluid from the vial, wherein the transfer chamber is in fluid communication with the needle;

wherein the needle retainer is configured so that the needle is automatically released for retraction at the end of an injection.

62. (Previously presented) The device of claim 61 comprising a seal displaceable relative to the transfer chamber to expel the medicinal fluid from the transfer chamber.

63. (Cancelled).

64. (Previously presented) The medical device of claim 61 wherein the holder is at least partially disposed within the barrel.

65. (Previously presented) The medical device of claim 61 wherein the holder is displaceable within the barrel.

66-67. (Cancelled).

68. (Previously presented) The device of claim 61 wherein displacement of the holder relative to the barrel is operable to expel medicinal fluid from the transfer chamber through the needle.

69. (Previously presented) The device of claim 61 wherein the holder is cooperable with the needle retainer to affect retraction of the needle.

70. (Previously presented) The device of claim 61 wherein upon forward displacement of the vial holder, the vial holder contacts the needle retainer and displaces the needle retainer affecting retraction of the needle.

71. (Previously presented) The medical device of claim 61 comprising a piston for expelling medicine out of the transfer chamber through the needle.

72. (Cancelled).

73. (Previously presented) The medical device of claim 61 wherein the transfer chamber is displaceable relative to the needle.

74. (Previously presented) The medical device of claim 61 comprising a valve adapted to control the flow of fluid between the transfer chamber and the vial.

75. (Previously presented) The medical device of claim 74 wherein the valve is a sliding valve.

76. (Previously presented) The medical device of claim 61 comprising a pierceable rear seal adapted to provide a fluid-tight seal between the vial and the transfer chamber.

77. (Previously presented) The device of claim 76 comprising a pierceable forward seal providing a fluid-tight seal between the transfer chamber and the needle.

78. (Cancelled).

79. (Previously presented) The device of claim 61 wherein the transfer chamber is disposed within the barrel.

80. (Currently amended) A medical device cooperable with a needle assembly having a retractable injection needle and a vial of medicinal fluid, comprising:

a housing cooperable with the needle assembly;

a socket for receiving the vial, wherein the socket further comprises a piston external to the vial and within the housing to provide positive fluid pressure within the vial when the vial is positioned in the socket;

an empty chamber in the housing for receiving the medicinal fluid from the vial;

a transfer seal disposed between the socket and the chamber;

a seal operable to ~~expel the~~ retain fluid within the chamber when closed and to permit medicinal fluid to be expelled from the chamber through the needle when opened; and

a valve ~~controlling~~ configured to control the flow of fluid ~~along the fluid path between the vial and the chamber~~;

wherein the housing has an activation surface cooperable with the needle assembly and ~~adapted~~ configured to activate retraction of the needle after use.

81. (Currently amended) The device of claim 80 ~~comprising~~ wherein the seal comprises a pierceable seal sealing the chamber.

82. (Previously presented) The device of claim 80 wherein the seal is positioned within the housing.

83. (Previously presented) The device of claim 80 wherein the seal forms a forward end of the chamber.

84. (Previously presented) The device of claim 80 wherein the seal is displaceable relative to the housing to expel the medicinal fluid from the chamber.

85. (Cancelled).

86. (Previously presented) The device of claim 80 wherein the valve is a sliding valve.

87. (Previously presented) The device of claim 80 comprising a stop for releasably retaining the housing from displacement relative to the needle assembly when the needle assembly is connected with the housing.

88. (Previously presented) The device of claim 80 wherein the needle assembly comprises a needle retainer releasably retaining the needle, and wherein the housing is operable to contact the needle retainer to affect release of the needle for retraction.

89. (Previously presented) The device of claim 80 wherein the piston is displaceable relative to the housing, and wherein displacing the piston forwardly is operable to pressurize the medicinal fluid in the vial.